

ABSTRACT

[Abstract] [Object] To provide a novel method for producing carbon nanowalls and an apparatus suitable for carrying out the method. [Solving Means] A source gas 32 containing carbon is introduced into a reaction chamber 10. The reaction chamber 10 includes a parallel plate-type capacitively coupled plasma (CCP) generator 20 including a first electrode 22 and a second electrode 24. The irradiation of electromagnetic waves plasmatizes the source material 32 to create a plasma atmosphere 34. In a radical-generating chamber 41 disposed outside the reaction chamber 10, hydrogen radicals 38 are generated by decomposing radical source gas 36 containing hydrogen using RF waves or other waves. The hydrogen radicals 38 are introduced into the plasma atmosphere 34, whereby carbon nanowalls are formed on a substrate 5 disposed on the second electrode 24. [Selected Figure] Fig. 1